

Sir:

Transmitted herewith for filing under 37 C.F.R. §1.53(b) is the patent application of  
Inventor(s): Aki NAGANO

For: TRANSACTION MANAGING APPARATUS AND METHOD AND RECORDING MEDIUM STORING TRANSACTION  
MANAGING PROGRAM THEREIN

- Specification and Claim s (52 pages)  
 31 sheets of drawings  
 Newly executed Declaration and Power of Attorney  
 Return Receipt Postcard  
 An assignment of the invention to Fujitsu Limited with accompanying PTO-1595 Form  
 A certified copy of Japanese Application(s) No.(s) 11-298009 filed: October 20, 1999  
 A filing fee, calculated as shown below:

(Col. 1)	(Col. 2)
FOR:	No. Filed
BASIC FEE	No. Extra
TOTAL CLAIMS	16 - 20 = * 0
INDEP CLAIMS	4 - 03 = * 1
<b>MULTIPLE DEPENDENT CLAIM PRESENTED</b>	

\* If the difference in Col. 1 is less than zero, enter "0" in  
Col. 2

Small Entity	Other Than A Small Entity
RATE	RATE
\$345	\$690
or	
× 9 =	0
or	
× 39 =	
or	
+130 =	\$78
TOTAL	0
	\$768
	or

Check # 295462 in the amount of \$ 808.00 to cover the filing fee and assignment recordation fee.  
In the event that the attached check is found to be insufficient, the Commissioner is hereby authorized to charge payment for any additional filing fees required under 37 CFR 1.16 associated with this communication or credit any over-payment to Deposit Account No. 01-2300.

Please charge our Deposit Account No. 01-2300 in the amount of \$ \_\_\_\_\_ to cover the filing fee and assignment recordation (see attached PTO-1595 form). A duplicate of this sheet is attached. The Commissioner is hereby authorized to charge payment for any additional filing fees required under 37 CFR 1.16 associated with this communication or credit any over-payment to Deposit Account No. 01-2300. A duplicate of this sheet is attached.

Respectfully submitted,  
ARENTE FOX KINTNER PLOTKIN & KAHN, PLLC

By: Charles M. Marmelstein  
Reg. No. 25,895

1050 Connecticut Avenue, N.W.  
Suite 600  
Washington, D.C. 20036-5339  
Tel: (202) 857-6000  
Fax: (202) 638-4810

CMM:mso

JC812 U.S. PTO  
09/606211  
06/29/00

TITLE OF THE INVENTION

TRANSACTION MANAGING APPARATUS AND METHOD AND  
RECORDING MEDIUM STORING TRANSACTION MANAGING  
PROGRAM THEREIN

5

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to transaction managing apparatus and method which are used for a POS terminal that is used for sales of goods at a store in distribution retail business, and to a recording medium in which a transaction managing program has been stored. More particularly, the invention relates to transaction managing apparatus and method for a POS terminal, by which incomplete transactions such as deferred pickup transaction in which the customer prepayes for goods and receives them later on another day, deferred payment sales in which goods are previously delivered and the customer pays for them later on another day, and the like are managed and controlled in a lump, and to a recording medium in which a transaction managing program has been stored.

Description of the Related Arts

Hitherto, as for sales of goods in distribution retail business, in addition to normal sales in which payment and a receipt of goods are simultaneously performed, there is an incomplete transaction in which

payment is made as prepayment, postpayment, payment by installments, or the like and the goods are delivered as predelivery, postdelivery, delivery by installments, or the like. In the incomplete transaction, when the  
5 transaction is started with the prepayment or the predelivery of goods, the contents of the transaction have to be continuously managed until the delivery of the goods or the payment is completed. As for the incomplete transaction, whether the timing to sum up  
10 the sales is set to the start of the transaction or the end of the transaction (at the time of completion of the payment of balance or at the time of the delivery of goods) is determined as necessary, and it is necessary to sum up the sales at the determined timing.  
15 However, in the conventional sales of goods, there are: the case where systems are provided for POS terminals in accordance with the kinds of incomplete transactions such as transaction of prepayment and postdelivery of goods, transaction of predelivery of  
20 goods and postpayment, and the like and various transactions are individually managed every system; and the case where the incomplete transactions are managed on the basis of slips independently of such systems. Therefore, in order to perform the management of all of  
25 the incomplete transactions, the grasp of the situations, and the like, it takes long time, it is difficult to perform such management and grasp, and

there is also a possibility that they are incorrectly performed.

SUMMARY OF THE INVENTION

5        According to the invention, there is provided a transaction managing apparatus for a POS terminal, in which management of all of the incomplete transactions, a grasp of situations thereof, and the like can be correctly performed in a short time and the kind of  
10      incomplete transaction can be also correctly changed in a short time.

A transaction managing apparatus for a POS terminal according to the invention is characterized by comprising: a transaction defining unit for defining a plurality of kinds of incomplete transaction types by combining a plurality of predetermined categories; and a management control unit for designating one of the plurality of kinds of incomplete transaction types and managing and controlling the transaction from the start  
15      to the end thereof in a lump by an interactive operation with the operator. According to the invention, therefore, the plurality of incomplete transactions can be controlled and managed in a lump by one system, so that the management of all of the  
20      incomplete transactions, the grasp of situations thereof, and the like can be correctly performed in an extremely short time. It is also possible to correctly  
25

change the control and management of the incomplete transaction in a short time merely by changing the designation of the incomplete transaction type.

There are the following categories to define the  
5 incomplete transaction types.

- (1) Method of tender such as prepayment, postpayment, payment by installments, or the like.
  - (2) Setting of necessity/unnecessity of prepayment.  
10 In case of necessity, the lowest percentage, the lowest amount, or the like is set.
  - (3) Term for payment
  - (4) Delivering method such as predelivery, postdelivery, delivery by installments, or the  
15 like
  - (5) Scheduled delivery date in case of predelivery, postdelivery, or the like
  - (6) Setting of permission/inhibition of predelivery.  
For example, when a paid amount does not reach  
20 the price of goods, whether the delivery is possible or not is set.
  - (7) Sales sum-up timing at the time of the start of the transaction, the completion of the payment, the completion of the transaction, or the like
- 25 The transaction defining unit of the present invention defines the incomplete transaction types by

combining at least three items of the sales sum-up timing, the presence or absence of necessity of the prepayment, and method of delivering goods.

As incomplete transaction types, for example, the  
5 transaction defining unit defines at least one of the  
following types A, B, C, and D.

Type A: Deferred pickup transaction on the principle  
of occurrence in which the sales are summed up  
10 upon occurrence of a transaction of a total  
amount prepayment.

Type B: Deferred pickup transaction on the principle  
of completion in which the sales are summed up  
upon completion of a transaction of the total  
15 amount prepayment.

Type C: Deferred payment transaction on the principle  
of occurrence in which the sales are summed up  
upon occurrence of a transaction of deferred  
payment sales with a specific customer.

20 Type D: Deferred payment transaction on the principle  
of completion in which the sales are summed up  
upon completion of a transaction of the deferred  
payment sales with a specific customer.

25 As for the deferred pickup transaction on the  
principle of occurrence of the type A, the transaction  
defining unit forms type code information having a

combination of the categories in which the sales sum-up timing is set to the timing upon occurrence of the transaction, to the timing at which the prepayment of a total amount is necessary, and to the timing at which  
5       the delivery of goods is performed later on another day. When the incomplete transaction of the type A as a deferred pickup transaction on the principle of occurrence is designated, the management control unit executes a prepaying process at the start of the  
10      transaction and a delivering process upon completion of the transaction. That is, as processes upon prepayment at the start of the transaction, the following processes are executed: an issue of a slip number of the incomplete transaction; an input of a delivery date  
15      of goods; a registration of goods; a registration of an amount of payment; a confirmation of the payment of the total amount; a display of an error in the case where the payment is not made yet; an issue of a customer copy with the slip number; and a sum-up of the sales.  
20      As processes upon delivery at the time when the transaction is completed, a display of incomplete transaction information by the input of the slip number, a registration of the delivery, and a termination of the incomplete transaction are executed.  
25      As for the deferred pickup transaction on the principle of completion of the type B, the transaction defining unit forms type code information having a

combination of the categories in which the sales sum-up timing is set to the timing upon completion of the transaction, to the prepayment of a total amount is necessary, and to the delivery of goods is set to  
5 postdelivery. When the incomplete transaction of the type B as a deferred pickup transaction on the principle of completion is designated, the management control unit performs the prepaying process at the start of the transaction and the delivering process  
10 upon completion of the transaction. That is, as processes upon prepayment at the start of the transaction, the following processes are executed: namely, an issue of a slip number of the incomplete transaction; an input of a delivery date of goods; a  
15 registration of goods; a registration of an amount of payment; a confirmation of the total amount payment; a display of an error in the case where the payment is not made yet; and an issue of a customer copy with the slip number. As processes upon delivery at the end of  
20 the transaction, a display of incomplete transaction information by the input of the slip number, a registration of the delivery, a sum-up of the sales, and a termination of the incomplete transaction are  
25 executed. The type B differs from the type A only with respect to a point that the sales sum-up timing in the type A is set to the start of the transaction and that in the type B is set to the completion of the

transaction.

With respect to the deferred payment transaction on the principle of occurrence of the type C, the transaction defining unit forms type code information  
5 having a combination of the categories in which the sales sum-up timing is set to the timing upon occurrence of the transaction, to the prepayment is unnecessary, and to the delivery of goods is set to a predelivery. When the incomplete transaction of the  
10 type C as a deferred payment transaction on the principle of occurrence is designated, the management control unit executes the prepaying process at the start of the transaction and the process upon payment. That is, as processes upon prepayment at the start of  
15 the transaction, the following processes are executed: namely, an issue of a slip number of the incomplete transaction; an input of a delivery date of goods; a registration of goods; a registration of an amount of payment including a zero amount; an issue of a customer  
20 copy with the slip number; a registration of a delivery; and a sum-up of the sales. As processes upon payment, a display of incomplete transaction information by the input of the slip number, a registration of the amount of payment, and a  
25 termination of the incomplete transaction in the case where a balance is equal to 0 are executed.

As for the deferred payment transaction on the

principle of completion of the type D, the transaction defining unit forms type code information having a combination of the categories in which the sales sum-up timing is set to the timing upon completion of the  
5 transaction, the prepayment is unnecessary, and the delivery of goods is set to a predelivery. When the incomplete transaction of the type D as a deferred payment transaction on the principle of completion is designated, the management control unit executes the  
10 prepaying process at the start of the transaction and the process upon payment. In other words, as processes upon prepayment at the start of the transaction, the following processes are executed: namely, an issue of a slip number of the incomplete transaction; an input of a  
15 delivery date of goods; a registration of goods; a registration of an amount of payment including a zero amount; a registration of a delivery; and an issue of a customer copy with the slip number. As processes upon payment, the following processes are executed: namely,  
20 a display of incomplete transaction information by the input of the slip number; a registration of the amount of payment; a sum-up of the sales in the case where a balance is equal to 0; and a termination of the incomplete transaction. The type C differs from the  
25 type D only to the point that the sales sum-up timing in the type C is set to the start of the transaction and that in the type D is set to the completion of the

transaction.

The transaction defining unit has, for example, an incomplete transaction management table, a type code table, an incomplete transaction line item information table, and a payment information management table. The incomplete transaction management table stores basic management information such as store number, incomplete transaction slip number, type code, transaction serial number upon occurrence, date and time of occurrence, customer number, requested amount, amount of down payment, balance, scheduled delivery date, delivery completion flag, sum-up possible/impossible flag, totalization completion flag, and the like. The type code table is designated by the type code in the incomplete transaction management table and stores category combination information such as sales sum-up timing, prepayment necessary/unnecessary flag, predelivery possible/impossible flag, method of tender, delivering method, and the like. The incomplete transaction detail information table is designated by the incomplete transaction slip number in the incomplete transaction management table and stores goods management information such as goods code, unit price, quantity, discount information, and the like. Further, the payment information management table is designated by the incomplete transaction slip number in the incomplete transaction management table and stores

payment management information such as date and time  
(time stamp) of payment, paid amount, kind of tender,  
and the like. On the basis of each table information  
of the transaction defining unit, the management  
5 control unit displays the following lists as a whole  
list or every type: namely, a list showing the  
incomplete transactions; a list of the customers who do  
not come to receive goods even after the scheduled  
delivery date; a list of the customers who do not come  
10 to pay after the term of payment; a list of the payment  
situations; and the like. As information that is  
stored in each table, each table does not need to have  
all of the information that is listed up but the  
invention includes a case where the table has proper  
15 storage contents as necessary.

According to the present invention, there is  
provided a transaction managing method for a POS  
terminal, comprising the steps of:

defining a plurality of kinds of incomplete  
20 transaction types by combining a plurality of  
predetermined categories; and  
designating one of the plurality of kinds of  
incomplete transaction types by an interactive  
operation with the operator and managing and  
25 controlling processes in a lump from the beginning of  
the transaction to the end.

According to the present invention, there is

provided a recording medium which stores a management control program, wherein the management control program comprises the steps of: defining a plurality of kinds of incomplete transaction types by combining a

5       plurality of predetermined categories; and designating one of the plurality of kinds of incomplete transaction types by an interactive operation with the operator and managing and controlling processes in a lump from the beginning of the transaction to the end.

10       The invention provides a transaction system, a plurality of terminal apparatuses are connected through a network to a server for managing transaction information, and each of those terminal apparatuses comprises: a transaction defining unit for defining a  
15       plurality of kinds of incomplete transaction types by combining a plurality of predetermined categories; and a management control unit for designating one of the plurality of kinds of incomplete transaction types by an interactive operation with the operator and managing  
20       and controlling processes in a lump from the beginning of the transaction to the end.

25       The above and other objects, features, and advantages of the present invention will become more apparent from the following detailed description with reference to the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an explanatory diagram of a POS system to which the invention is applied;

Fig. 2 is an explanatory diagram of a program structure of a POS terminal in Fig. 1;

5 Fig. 3 is a block diagram of a functional construction of the POS terminal according to the invention;

Figs. 4A and 4B are explanatory diagrams of a table structure provided for a transaction defining  
10 unit in Fig. 3;

Figs. 5A to 5D are explanatory diagrams of incomplete transaction types defined in the POS terminal in Fig. 3;

15 Fig. 6 is a flowchart for an incomplete transaction process by the POS terminal in Fig. 3;

Fig. 7 is a flowchart for a paying process in a deferred pickup transaction on the principle of occurrence (type A);

20 Figs. 8A to 8D are explanatory diagrams of operation picture planes in the paying process in Fig. 7;

Fig. 9 is a flowchart for a delivering process in the deferred pickup transaction on the principle of occurrence (type A);

25 Figs. 10A to 10E are explanatory diagrams of operation picture planes in the delivering process in Fig. 9;

Fig. 11 is a flowchart for a paying process in the deferred pickup transaction on the principle of completion (type B);

5 Fig. 12 is a flowchart for a delivering process in the deferred pickup transaction on the principle of completion (type B);

Fig. 13 is a flowchart for a paying process in a deferred payment transaction on the principle of completion (type D);

10 Figs. 14A to 14E are explanatory diagrams of operation picture planes in the paying process in Fig. 13;

15 Fig. 15 is a flowchart for the paying process in the deferred payment transaction on the principle of completion (type D);

Figs. 16A to 16E are explanatory diagrams of operation picture planes in the paying process in Fig. 15;

20 Fig. 17 is a flowchart for the paying process in a deferred payment transaction on the principle of occurrence (type C);

Fig. 18 is a flowchart for the paying process in the deferred payment transaction on the principle of occurrence (type C);

25 Figs. 19A and 19B are explanatory diagrams of a display of list picture planes in the incomplete transaction; and

Figs. 20A and 20B are explanatory diagrams of another embodiment of a table structure provided for the transaction defining unit in Fig. 4.

5        DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

(Construction and functions)

Fig. 1 is an explanatory diagram of a POS system (point of service system) to which transaction managing apparatus and method of the invention are applied. The  
10      POS system comprises a plurality of POS terminals 10-1 and 10-2, an LAN 12, a POS server 20, a server file 22, a host system 24, and a host file 26. Input/output apparatuses for POS such as bar code readers 14-1 and 14-2, printers 16-1 and 16-2, card readers 18-1 and 18-  
15      2, and the like are provided for the POS terminals 10-1 and 10-2 as necessary. Although fig. 1 shows an example of the POS system of a large scale, in case of a POS system of a middle scale, the system is constructed by the POS server 20, server file 22, and  
20      POS terminals 10-1 and 10-2. Further, in case of a system of a small scale such as a private store or the like, there is a case where the POS system is constructed only by the POS terminals 10-1 and 10-2. Such a POS system is installed in a store or the like  
25      of the distribution retail business, performs a settlement by cash, a credit card, or the like in association with a purchase of goods, and sums up a

result of settlement. In the invention, each of the POS terminals 10-1 and 10-2 has a function to perform management and a control in a lump with respect to what is called an incomplete transaction in which the

5 payment, the delivery of goods, and the like are performed at the different dates/hours in addition to the normal transaction in which the settlement of payment and the receipt of goods are performed at the time of purchase.

10 Fig. 2 shows an example of a program structure of the POS terminal 10-1 in Fig. 1. The POS terminal 10-1 is provided with: a POS application 28; a retail application frame work technology 30 as middle software; an OS 32; and an IOPOS 34 for standardizing 15 the input/output apparatuses for the purpose of POS. The bar code reader 14-1, printer 16-1, and card reader 18-1 are connected to the IOPOS 34, thereby enabling them to be handled as standardized input/output apparatuses as compared with the retail application frame work technology 30. The retail application frame work technology 30 also communicates with the POS server 20 in Fig. 1. The function of the transaction managing apparatus for an incomplete transaction according to the invention is realized by the retail 20 application frame work technology 30 and POS application 28 in the POS terminal 10-1 in Fig. 2.

25 Fig. 3 is a block diagram of a functional

construction of the transaction managing apparatus according to the invention which is provided for the POS terminals 10-1 and 10-2 in Fig. 1 and is used for managing and controlling the incomplete transaction in

5 a lump. The transaction managing apparatus of the invention is constructed by a transaction defining unit 36 and a management control unit 38. A database 40 is provided for the transaction defining unit 36.

Input/output apparatuses such as incomplete transaction

10 picture plane display unit 42, key input unit 46, bar code reader 14, slip issuing unit 48, and the like are provided for the management control unit 38. When considering the correspondence with the program structure in Fig. 2, the function of the transaction

15 defining unit 36 is realized by the retail application frame work technology 30 and the management control unit 38 is realized by the POS application 28. The transaction defining unit 36 defines a plurality of kinds of incomplete transaction types by combining a

20 plurality of predetermined categories with respect to the incomplete transaction. In association with the definition of the incomplete transaction types, an incomplete transaction management table 50, a type code table 52, an incomplete transaction detail information table 54, and a payment information management table 56

25 are provided for the transaction defining unit 36.

Among them, the type code table 52 functions as a

definition table in which a plurality of kinds of incomplete transaction types are defined by combining a plurality of categories. The management control unit 38 designates one of the incomplete transaction types 5 defined by the transaction defining unit 36 by the interactive operation with the operator and manages and controls processes in a lump from the beginning of the transaction to the end. In the embodiment, in the transaction defining unit 36, since it is assumed that 10 four types A, b, C, and D are defined as an example as will be explained hereinlater, a type A management control unit 58, a type B management control unit 60, a type C management control unit 62, and a type D management control unit 64 are provided for the 15 management control unit 38. Further, incomplete transaction information 66 and normal transaction information 68 are provided for the database 40. Each transaction information formed by the transaction operation of the POS terminal is recorded. An item 20 name table 70 and a price lookup table (PLU) 72 are provided for the database 40. The item name table 70 is constructed by an item number code and an item name. The item number code and the item name can be 25 recognized with reference to the item name table 70 based on the code read out by the bar code reader 14. The price lookup table 72 is constructed by the item number code and the price. Therefore, the price can be

recognized by seeing the price lookup table 72 on the basis of the item number code derived with reference to the item name table 70.

Figs. 4A and 4B are explanatory diagrams of the  
5 details of each table provided for the transaction defining unit 36 in Fig. 3 and its link structure. The incomplete transaction management table 50 has basic information for incomplete transaction. That is, the incomplete transaction management table 50 is provided  
10 with: a store number, an incomplete transaction serial number (incomplete transaction slip number), a type code indicative of an incomplete transaction type, a transaction serial number upon occurrence, date and time of occurrence, a customer number, a status code, final updating date and time, an employee ID upon occurrence, a requested amount, an amount of down payment, a balance, a scheduled delivery date, a delivery completion flag, a sum-up possible/impossible flag, a totalization completion flag, and the like.  
15 The incomplete transaction detail information table 54 and payment information management table 56 can be referred to on the basis of the store number and the incomplete transaction serial number in the incomplete transaction management table 50. A store number, an incomplete transaction serial number, a line item  
20 number, line item information, and the like have been stored in the incomplete transaction detail information  
25

table 54. A store number, an incomplete transaction serial number, a payment processing store number, a transaction serial number upon payment, date and time of payment, a paid amount, a kind of tender, an  
5 employee ID upon payment, and the like have been stored in the payment information management table 56. The type code table 52 can be referred to on the basis of the type code in the incomplete transaction management table 50. The type code table 52 is a table for  
10 defining a plurality of kinds of incomplete types by combining a plurality of predetermined categories in the transaction defining unit 36 in Fig. 3. In the embodiment, a plurality of categories such as type code, sum-up timing, payment necessary/unnecessary  
15 flag, predelivery possible/impossible flag, method of tender, delivering method, and the like are provided in the type code table 52. The type of incomplete transaction is determined by a combination of those categories. Each category in the type code table 52  
20 will now be described as follows. First, a timing at the start of the transaction, a timing upon completion of the payment, a timing upon completion of the delivery, and the like can be set as sum-up timings. The prepayment necessary/unnecessary flag is used to  
25 set the presence or absence of the necessity of the prepayment in the incomplete transaction. In this case, if the prepayment is necessary, the lowest

percentage, the lowest amount, or the like can be set. The next predelivery possible/impossible flag is a flag for setting whether the predelivery of goods is possible or not. For example, when the paid amount

5      does not reach the goods price, a condition about whether the predelivery is possible or not or the like is set. A prepayment, a postpayment, a payment by installments, or the like is set as a method of tender.

There is a predelivery, a postdelivery, a delivery by

10     installments, or the like as a delivering method. A scheduled delivery date can be also set in association with the delivering method. As for the scheduled delivery date, an appointed day is set in case of predelivery and a date determined as a default, for

15     example, a date after five business days or the like is set in case of postdelivery. Among those categories in the type code table 52, there are the following items as minimum categories necessary for incomplete transaction in the invention.

20       I. sum-up timing  
          II. prepayment necessary/unnecessary flag  
          III. delivering method

The type of incomplete transaction can be defined by combining the other categories with those three

25     basic categories as necessary.

Figs. 5A to 5D are explanatory diagrams of a type code table in which four types A, B, C, and D have been

defined as types of the incomplete transaction. Fig. 5A shows a type code table 74 for the deferred pickup transaction and on the principle of occurrence corresponding to the type A. The incomplete  
5 transaction of the type A is an unsettled transaction of the prepayment of a total amount and is a deferred pickup transaction on the principle of occurrence in which the sales are summed up upon occurrence of the transaction. Therefore, in the type code table 74 for  
10 the deferred pickup transaction and on the principle of occurrence, the type code A is first defined. Subsequently, "upon occurrence of transaction" is defined as a sum-up timing. "necessary" is defined as a prepayment necessary/unnecessary flag. "total  
15 amount" is defined as attribute information. "postdelivery" is defined as a delivering method. Thus, the type designation of the incomplete transaction by the three basic categories is performed. Further, "after 5 business days" is set as a default of  
20 the scheduled delivery date. Fig. 5B is an explanatory diagram of a type code table 76 in which the incomplete transaction of the type B is defined. The incomplete transaction of the type B is an incomplete transaction of the prepayment of a total amount and is a deferred pickup transaction on the principle of completion in which the sales are summed up upon completion of the transaction. Therefore, in the type code table 76 for  
25

the deferred pickup transaction and on the principle of completion, the type code B is first defined.

Subsequently, "at the end of transaction" is defined as a sum-up timing. The subsequent prepayment

- 5       necessary/unnecessary flag, delivering method, and  
          scheduled delivery date are the same as those in case  
          of the type code table 74 in Fig. 6A. Fig. 5C is an  
          explanatory diagram of a type code table 78 in which  
          the incomplete transaction of the type C is defined.
- 10      The incomplete transaction of the type C is an  
          unsettled transaction in which deferred payment sales  
          are made for a specific customer and is a deferred  
          payment transaction on the principle of occurrence in  
          which the sales are summed up upon occurrence of the
- 15      transaction. Therefore, in the type code table 78 for  
          the deferred payment transaction and on the principle  
          of occurrence, the type code C is defined. "upon  
          occurrence of transaction" is defined as a sum-up  
          timing. "unnecessary" is defined as a payment
- 20      necessary/unnecessary flag because of the deferred  
          payment transaction of deferred payment sales,  
          "predelivery" is defined as a delivering method, and  
          further, "appointed day" as a default is defined as a  
          scheduled delivery date. Fig. 5D is an explanatory
- 25      diagram of a type code table 80 in which the incomplete  
          transaction of the type D is defined. The incomplete  
          transaction of the type D is an unsettled transaction

in which deferred payment sales are made for a specific customer and is a deferred payment transaction on the principle of completion in which the sales are summed up upon completion of the transaction. In  
5 correspondence to the unsettled transaction types A, B, C, and D defined in the type code tables 74, 76, 78, and 80, in Figs. 5A to 5D, the control functions of the type A management control unit 58, type B management control unit 60, type C management control unit 62, and  
10 type D management control unit 64 are provided for the management control unit 38 in Fig. 3. Each of the management control units 58, 60, 62, and 64 manages and controls all of the incomplete transactions separately with respect to the process at the time of prepayment  
15 in which the incomplete transaction is started and the process in which the goods delivery or the payment is made.

Fig. 6 is a fundamental flowchart for the control process with respect to the incomplete transaction by  
20 the transaction managing apparatus according to the invention of Fig. 3. First, when an incomplete operation key is depressed in order to declare the incomplete transaction by using the operation picture plane of the POS terminal, it is discriminated in step  
25 S1. An incomplete transaction menu is displayed in step S2. When the incomplete transaction menu is displayed, two menus of "transaction upon payment" in

which the incomplete transaction is started and "transaction upon delivery" (including "transaction upon payment") in which the incomplete transaction is completed are displayed. When the menu of "transaction  
5 upon payment" indicative of the start of the incomplete transaction is selected, the processing routine advances from step S3 to step S4. The process upon payment according to the type designated at that time is executed. When the start of the incomplete  
10 transaction is not selected in step S3, whether the incomplete transaction delivery has been selected or not is discriminated in step S5. If the delivery is selected, step S6 follows and the process upon delivery according to the slip number is executed. The  
15 processes in steps S1 to S6 are repeated until there is an end instruction to the POS terminal in step S7. When the incomplete operation key is not depressed in step S1, the processing routine advances to the process for the normal transaction (not shown).  
20

(Deferred pickup transaction)

Fig. 7 is a flowchart for a process upon prepayment in step S4 in Fig. 6 in the case where the incomplete transaction type A as a deferred pickup  
25 transaction on the principle of occurrence has been designated. In the process upon payment for starting the transaction in the deferred pickup transaction on

the principle of occurrence, first, in step S1, the delivery date of goods is inputted. As a delivery date of goods, "after 5 business days" is displayed as a default in the type code table 74 in Fig. 5A. If this  
5 date is wrong, it is corrected by a manual input or the like. In step S2, the registration of goods using the bar code reader or the like is executed in step S2 in a manner similar to the normal transaction. In step S3, the amount of payment is registered. In the deferred  
10 pickup transaction on the principle of occurrence of the type A, the prepayment necessary/unnecessary flag is set to "necessary (total amount)" with reference to the type code table 74 in Fig. 5A. Therefore, after the amount of payment was registered, whether the total  
15 amount has been paid or not is discriminated in step S4. If the total amount is not paid, an error is displayed in step S7. The registration of the amount of payment is executed again in step S4. If the total amount was paid in step S4, step S5 follows and a  
20 customer copy with the incomplete transaction slip number is issued by the printer. Finally, the sales are summed up in step S6. That is, the sales are summed up at the start of the incomplete transaction in the deferred pickup transaction on the principle of  
25 occurrence of the type A.

Figs. 8A to 8D and 9 are explanatory diagrams of operation picture planes of the POS terminal in the

process upon payment of the deferred pickup transaction on the principle of occurrence in Fig. 7. Fig. 8A shows a sales registration picture plane 82 shown as an initial picture plane of the POS terminal. A bar code  
5 display frame 84 and a goods information list 85 which are used for the normal sales registration are displayed in an empty state onto the sales registration picture plane 82. Further, a check box 86 for the incomplete transaction is provided on the lower side.  
10 In the normal sales registration, when a bar code scan of the goods is performed, a bar code (numeral) is automatically displayed in the bar code display frame 84 (it can be also manually inputted by a key input) and a name, a price, and the like of the goods are  
15 displayed in the goods information list 85. Therefore, the start of the incomplete transaction is first declared. As for the declaration of the start of the incomplete transaction, the check box 86 of the incomplete transaction on the sales registration picture plane 82 is selected by clicking the mouse,  
20 depressing the operation key, pressing a touch panel, or the like, thereby inverting it to a state shown in black (hereinbelow, this operation is merely referred to as "selection of check box"). The screen is  
25 switched to an incomplete transaction menu picture plane 88 of Fig. 8B by the declaration of the start of the incomplete transaction. Check boxes 90 and 92 are

provided on the incomplete transaction menu picture plane 88 with respect to the transaction upon payment and the transaction upon delivery. The check box 90 of the transaction upon payment is selected. The screen  
5      is switched to an incomplete transaction type selection picture plane 94 of Fig. 8C by the selection of the check box 90. Check boxes 96, 98, 100, and 102 of four types of the deferred pickup transaction (on the principle of occurrence), deferred payment transaction  
10     (on the principle of occurrence), deferred pickup transaction (on the principle of completion), and deferred payment transaction (on the principle of completion) are provided on the incomplete transaction type selection picture plane 94. Since the transaction  
15     is the deferred pickup transaction on the principle of occurrence, the check box 96 is selected.  
Subsequently, the screen is switched to a delivery date input picture plane 104 in the deferred pickup transaction of Fig. 8D. Assuming that the current date  
20     of the start of the transaction is set to September 23, 1999, "19990928" indicative of "after 5 business days" of the default is displayed in an input frame 106 of the delivery date input picture plane 104. If a correction is necessary, the date is corrected by a  
25     manual input or the like. In this state, the bar code of the goods is read by the bar code reader or the like, the goods is registered, a payment for the

displayed price is received from the customer, its payment registration is performed, and in case of a total amount, a customer copy on which the incomplete transaction slip number has been recorded is issued by  
5 the printer. If the amount of payment at the time of the payment registration is not equal to the total amount, an error display or the like is performed.

Fig. 9 is a flowchart for a process upon delivery which is performed after the process upon payment of  
10 the incomplete transaction type A in Fig. 7. In the process upon delivery, with reference to the customer copy handed upon payment in step S1, the incomplete transaction slip number is inputted. On the basis of the input of the slip number, the relevant incomplete  
15 transaction is displayed in step S2. The goods is handed on the basis of the display contents and a registration key is depressed. When the registration key is depressed in step S3, step S4 follows and a process for completing the incomplete transaction is executed.  
20 With respect to the contents of the incomplete transaction displayed in step S2, if the goods delivery has already been registered, an error display or the like is performed. Since the registration key is not selected, step S5 follows.  
25 Whether the delivery has been performed or not is discriminated from the registration contents. The processing routine is finished.

Figs. 10A to 10E are explanatory diagrams of operation picture planes for the process upon delivery in the incomplete transaction type A in Fig. 9. When the declaration of the incomplete transaction on the sales registration picture plane in Fig. 10A is selected by the check box 86, since the screen is switched to the incomplete transaction menu picture plane 88 of Fig. 10B, the transaction upon delivery is designated by selecting the check box 92. Thus, the screen is switched to a slip number input picture plane 108 of Fig. 10C. Therefore, by inputting the slip No. "0000001" recorded on the received customer copy slip, the screen is switched to an incomplete transaction confirmation picture plane 112 of Fig. 10D. Status display boxes 116 and 118 with respect to a sales date, a sales amount, a balance, a delivery date, completion of payment, and "delivered" are provided for the incomplete transaction confirmation picture plane 112 in correspondence to the slip number, respectively.

When the registration key is operated, therefore, the status display box 118 of "delivered" is set to "delivered" and a series of incomplete transaction is finished. In the case where the screen is switched to an incomplete transaction confirmation picture plane 112 of Fig. 10E when the slip number is inputted in Fig. 10C, since the status display box 118 has already been set to "the goods has already been delivered", a

message indicating this fact or the like is displayed and a series of processes is finished.

Fig. 11 is a flowchart for a process upon payment in the deferred pickup transaction on the principle of completion corresponding to the incomplete transaction type B. In the process upon payment in the deferred pickup transaction on the principle of completion, the check box 86 of the incomplete transaction is clicked on the sales registration picture plane 82 as shown in Fig. 8A, the check box 90 of the transaction upon payment is selected on the incomplete transaction menu picture plane 88 in Fig. 8B, and subsequently, the check box 100 of the deferred pickup transaction (on the principle of completion) is selected on the incomplete transaction type selection picture plane 94 of Fig. 8C, thereby activating such a process upon payment. First, in step S1, the delivery date of goods is inputted by using the same delivery date input picture plane 104 as that of Fig. 8D. Also in this case, "after 5 business days" of a default as a scheduled delivery date set in the type code table 76 in Fig. 5B is displayed. If it is necessary to correct the delivery date, it is corrected by a manual input or the like. Subsequently, in step S2, a registration of the goods is performed by reading the bar code of the goods by using the bar code reader or the like in a manner similar to the case of the normal transaction.

An amount of payment is registered in step S3. In this case, since it is recognized from the type code table 76 in Fig. 5B that the prepayment is necessary and the total amount is necessary, when it is confirmed in step  
5 S4 that the total amount has been paid, a customer copy with the incomplete transaction slip number is issued in step S5. If the total amount is not paid in step S4, an error display or the like is performed in step S6. The registration of the paid amount from step S3  
10 is executed again. In the process upon payment in the deferred pickup transaction on the principle of completion in Fig. 11, a point that the sum-up of sales amounts is not performed in the process upon payment differs from the case of the deferred pickup  
15 transaction on the principle of occurrence of the type A shown in Fig. 7.

Fig. 12 is a flowchart for a process upon delivery in the deferred pickup transaction on the principle of completion which is executed at the time of the  
20 delivery of goods after the process upon payment in Fig. 11. Also in the process upon delivery, first, when the check box 86 of the incomplete transaction is selected on the same sales registration picture plane 82 as that of Fig. 10A and the check box 92 upon  
25 delivery is selected on the incomplete transaction menu picture plane 88 of Fig. 10B, the slip number input picture plane 108 of Fig. 10C is displayed. By

inputting the incomplete transaction slip number recorded on the customer copy in step S1, the incomplete transaction confirmation picture plane 112 similar to that of Fig. 10D is displayed in step S2.

- 5 After it is confirmed that the payment is not finished, by clicking the registration key, the processing routine advances from step S3 to step S4. At this time point, the sales are summed up and the incomplete transaction is completed. In the case where the  
10 confirmation display picture plane of the incomplete transaction in step S2 indicates that the status display box 118 indicates "delivered" as shown in Fig. 10E, the processing routine is finished.

15 (Deferred payment transaction)

- Fig. 13 is a flowchart for a process upon payment in the case where the incomplete transaction type D as a deferred payment transaction on the principle of completion is selected in the embodiment of Fig. 3. In  
20 the registering process of the incomplete transaction type D, first, the check box of the incomplete transaction 86 is selected on the sales registration picture plane 82 as shown in Fig. 14A and the incomplete transaction is declared. Subsequently, the  
25 check box 92 of the transaction upon delivery is clicked by using the incomplete transaction menu picture plane 88 in Fig. 14B and the check box 102 of

the deferred payment transaction (on the principle of completion) is selected with respect to the incomplete transaction type selection picture plane 94 of Fig. 14C, so that the process is started. When the process 5 is started, an input picture plane 115 of the delivery date of goods in Fig. 14D is displayed in step S1. "delivery on the appointed day (19990923)" which has been set in the scheduled delivery date in the type code table 80 in Fig. 5D is displayed as a default in a 10 date input frame 115-1 on the input picture plane of the delivery date of goods. Subsequently, in step S2 in Fig. 13, the bar code of the goods is read by using the bar code reader, thereby registering the goods in a manner similar to the normal transaction. When the 15 registration of the goods is finished, in this deferred payment transaction, since it is recognized from the type code table 80 in Fig. 5D that the delivering method has been set to "predelivery" and the scheduled delivery date has been set to "appointed day", an 20 incomplete transaction confirmation picture plane 116-1 of Fig. 14E is displayed in order to confirm the delivery. Therefore, it is confirmed that when the registration key is clicked with respect to the incomplete transaction confirmation picture plane 116- 25 1, a status display box 126 of "delivered" on the incomplete transaction confirmation picture plane 116-1 is set to "delivered". An amount of payment is

registered in step S4. In this deferred payment transaction, since it is valid, even if the amount of payment is equal to zero, the zero amount of payment is registered. A customer copy with the incomplete  
5 transaction slip number is issued in step S5. Since the deferred payment transaction is based on the principle of completion, the sum-up of the sales is not performed at this time point of the process upon payment.

10 Fig. 15 shows a process upon payment in the incomplete transaction type D which is executed in the case where there is a balance in the process upon payment in Fig. 13. With respect to the process upon payment of the deferred payment transaction, the check  
15 box 86 of the incomplete transaction on the sales registration picture plane 82 is selected as shown in Fig. 16A and the incomplete transaction is declared and the check box 92 of the transaction upon delivery is selected on the incomplete transaction menu picture plane 88 of Fig. 16B, so that the screen is switched to the slip number input picture plane 115 of Fig. 16C. Therefore, in the paying process of the deferred  
20 payment transaction (on the principle of completion) in Fig. 15, first, when the incomplete transaction slip  
25 number recorded on the customer copy is inputted in step S1, an incomplete transaction confirmation picture plane 116-2 of Fig. 16D is displayed in step S2.

Subsequently, in step S3, whether the transaction has been completed or not is discriminated. If NO, a balance on the incomplete transaction confirmation picture plane 116-2 is equal to, for example, "¥25,000"

5      as shown in Fig. 16D. Therefore, the registration key is clicked in step S4 for the purpose of payment. An amount of payment is registered in step S5. Whether the balance is equal to zero or not is now discriminated in step S6. If it is equal to zero, the

10     sales are summed up and the incomplete transaction is completed in step S7. A customer copy with the incomplete transaction slip number is issued in step S8. When the transaction is completed in step S3, for example, in the case where a status display box 124

15     indicative of the zero balance and the completion of the payment and the check box 126 indicative of "paid and delivered" show the completion as shown on, for example, an incomplete transaction confirmation picture plane 116-3 of Fig. 16E, the processes in steps S4 to

20     S7 are skipped. Since the process upon payment of the deferred payment process has already been finished, a customer copy with the incomplete transaction slip number is issued in step S8 and the processing routine is finished.

25     Fig. 17 is a flowchart for a process upon prepayment of the incomplete transaction type C as a deferred payment transaction on the principle of

occurrence. The processes from the input of the delivery date of goods in step S1 to the issue of a customer copy with the incomplete transaction slip number in step S5 are substantially the same as those  
5 in steps S1 to S5 for the process upon payment in the incomplete transaction type D (deferred payment transaction on the principle of completion) of Fig. 13. Since the transaction is based on the principle of occurrence in addition to those processes, Fig. 17  
10 differs from Fig. 13 with respect to a point that the sales are summed up in step S6.

Fig. 18 is a flowchart for a process upon payment which is executed later on another day in the case where the balance is not equal to zero in the process  
15 upon payment in Fig. 17. Although the process upon payment is fundamentally the same as the process upon payment of the incomplete transaction type D (deferred payment process on the principle of completion) shown in Fig. 15, since the transaction is based on the principle of occurrence, Fig. 18 differs from Fig. 15 with respect to a point that the incomplete transaction is completed without summing up the sales in step S7.  
20 The other points are substantially the same as those in Fig. 15.

25 Figs. 19A and 19B show specific examples of a list display which can be displayed by the transaction managing apparatus according to the invention in Fig.

3. In the transaction managing apparatus of the invention, with respect to the incomplete transactions which are managed in a lump, the contents of the incomplete transactions can be displayed as a list as a  
5 whole list or every type. Fig. 19A shows a list display with respect to all of the incomplete transactions. All of situations of the incomplete transactions as of October 01, 1999, are displayed on an incomplete transaction list picture plane 128. In  
10 the list display, items of the slip number, date and time of occurrence, an amount of payment, and a type are displayed every incomplete transaction. This list picture plane is scroll displayed and results of totalization of the totals, the number of incomplete  
15 transactions, the number of transactions per type, the number of complete transactions, the number of delivery waiting transactions, the number of payment waiting transactions, and the like can be also displayed on the final page. Fig. 19B shows a display picture plane of  
20 a list of customers who do not come to receive the goods even after the expiration of the scheduled delivery date with regard to all of the incomplete transactions. A slip number, date and time of occurrence, a scheduled delivery date, and a type are  
25 displayed on an untake-over customer list picture plane 132. Besides them, an incomplete transaction list picture plane and an untake-over customer list picture

plane classified for each of the types A to D can be displayed. Further, also with respect to the unpayment customers who do not come to pay for the goods even after the expiration of the term for payment, lists of  
5 unpayment customers can be displayed as for all of the incomplete transactions and every type. Further, a list of payment situations can be displayed.

Figs. 20A and 20B show another embodiment of a table structure which is provided for the transaction  
10 defining unit 36 in Fig. 3. In this table structure, an option table 136, a payment schedule information table 138, a discount information table 140 are further added to the tables of Figs. 4A and 4B. In association with them, an option code and a payment schedule code  
15 are newly added to the incomplete transaction management table 50. The option code is linked to the option table 136. Handling methods for the unpayment persons such as option code, incomplete transaction longest period, method after the elapse of the longest  
20 period, commission on postpayment, and the like are defined in the option table 136. The payment schedule code added to the incomplete transaction management table 50 is linked to the payment schedule information table 138. Information regarding the payment by  
25 installments such as payment schedule code, lowest percentage of prepayment, the number of paying times, term for payment, payment schedule, and the like is

defined in the payment schedule information table 138. Further, subsequent to the store number and the incomplete transaction serial number, information regarding the discount such as line item number,  
5 discount information, and the like is defined in the discount information table 140 which is linked by the store number and the incomplete transaction serial number in the incomplete transaction management table  
50. As mentioned above, as a table structure of the  
10 transaction defining unit 36 in Fig. 3, the contents of the incomplete transaction can be defined in detail as necessary by the table structure with respect to a proper category of the incomplete transaction and, further, items which determine the transaction  
15 contents. The item contents of each table can be properly defined as necessary in accordance with the contents of the incomplete transaction.

As described above, according to the invention, a plurality of kinds of incomplete transaction types are  
20 defined in combination of a plurality of predetermined categories, one of the incomplete transaction types is designated by the interactive operation with the operator, and the processes from the start of the transactions to the end can be managed and controlled  
25 in a lump, so that a batch control and a batch management of a plurality of incomplete transactions can be performed by one system. Therefore, management

of all of the incomplete transactions, a situation grasp, and the like which have been difficult so far can be accurately performed in an extremely short time. Further, since the incomplete transactions are

5       classified into types according to the combination of the categories, the management control method of the incomplete transaction can be accurately changed in a short time merely by designating the type.

Although the above embodiment relates to the  
10      example of the transactions of four incomplete transaction types A to D defined by the type code table in Figs. 5A to 5D, the incomplete transaction type can be arbitrarily determined as necessary by a plurality of combinations of the categories including at least  
15      the sum-up timing, prepayment necessary/unnecessary flag, and delivering method. In the actual incomplete transaction, it is not limited to the case of a plurality of types but there is also a case where it has an incomplete transaction of only a specific type.  
20      In such a case, therefore, the processes regarding the incomplete transaction of the type which has previously been defined are executed merely by declaration of the incomplete transaction. The invention further provides a computer-readable recording medium on which an  
25      incomplete transaction managing program has been recorded. Therefore, as a recording medium for this purpose, a proper portable recording medium such as FD,

CD-ROM, DVD, or the like can be used. A program for incomplete transaction which is stored in the recording medium has the function of the transaction defining unit 36 and the function of the management control unit 38 in Figs. 4A and 4B. In this case, since the transaction defining unit 36 is realized by, for example, the retail application frame work technology 30 in Fig. 2, an independent program in this portion can be realized. Since the program for the management control unit 38 is realized as a POS application 28, an independent program in this portion can be realized.

The invention incorporates many proper modifications and variations without departing from the objects and advantages of the invention. Further, the invention is not limited by the numerical values shown in the embodiment.

WHAT IS CLAIMED IS:

1. A transaction managing apparatus, comprising:
  - a transaction defining unit for defining a plurality of kinds of unsettled transaction types by combining a plurality of predetermined categories; and
    - 5 a management control unit for designating one of said plurality of kinds of unsettled transaction types by an interactive operation with the operator and managing and controlling processes in a lump from the
    - 10 start of the transaction to the end.
  2. An apparatus according to claim 1, wherein said transaction defining unit defines the unsettled transaction types by combining at least a sales sum-up timing, the presence or absence of necessity of prepayment, and a delivering method of goods as said categories.
  3. An apparatus according to claim 2, wherein as said  
20 unsettled transaction types, said transaction defining unit defines at least one of:
    - an unsettled transaction of prepayment of a total amount, namely, a deferred pickup transaction on the principle of occurrence in which sales are summed up  
25 upon occurrence of the transaction;
    - an unsettled transaction of prepayment of a total amount, namely, a deferred pickup transaction on the

principle of completion in which sales are summed up upon completion of the transaction;

an unsettled transaction of deferred payment sales for a specific customer, namely, a deferred payment

5 transaction on the principle of occurrence in which sales are summed up upon occurrence of the transaction; and

an unsettled transaction of deferred payment sales for a specific customer, namely, a deferred payment

10 transaction on the principle of completion in which sales are summed up upon completion of the transaction.

4. An apparatus according to claim 3, wherein said transaction defining unit forms type code information

15 having a combination of categories in which a sales sum-up timing is set to a timing upon occurrence of the transaction, a prepayment of a total amount is necessary, and a delivery of goods is set to a postdelivery with respect to said deferred pickup

20 transaction on the principle of occurrence.

5. An apparatus according to claim 4, wherein in the case where said deferred pickup transaction on the principle of occurrence is selected as an unsettled

25 transaction type, said management control unit:

sequentially executes, as processes upon prepayment, an issue of an incomplete transaction slip

CONFIDENTIAL

number, an input of a delivery date of goods, a registration of goods, a registration of an amount of payment, a confirmation of a payment of a total amount, an error display in case of unpayment, an issue of a 5 customer copy with said slip number, and a sum-up of sales amounts; and

sequentially executes, as processes upon delivery, a display of incomplete transaction information by an 10 input of the slip number, a registration of a delivery, and a termination of the incomplete transaction.

6. An apparatus according to claim 3, wherein said transaction defining unit forms type code information having a combination of categories in which a sales 15 sum-up timing is set to a timing upon completion of the transaction, a prepayment of a total amount is necessary, and a delivery of goods is set to a postdelivery with respect to said deferred pickup transaction on the principle of completion.

20  
7. An apparatus according to claim 6, wherein in the case where said deferred pickup transaction on the principle of completion is selected as an unsettled transaction type, said management control unit:  
25 sequentially executes, as processes upon prepayment, an issue of an incomplete transaction slip number, an input of a delivery date of goods, a

registration of goods, a registration of an amount of payment, a confirmation of a payment of a total amount, an error display in case of unpayment, and an issue of a customer copy with said slip number; and

5 sequentially executes, as processes upon delivery, a display of incomplete transaction information by an input of the slip number, a registration of a delivery, a sum-up of sales amounts, and a termination of the incomplete transaction.

10  
8. An apparatus according to claim 3, wherein said transaction defining unit forms type code information having a combination of categories in which a sales sum-up timing is set to a timing upon occurrence of the  
15 transaction, a prepayment is unnecessary, and a delivery of goods is set to a predelivery with respect to said deferred payment transaction on the principle of occurrence.

20  
9. An apparatus according to claim 8, wherein in the case where said deferred payment transaction on the principle of occurrence is selected as an unsettled transaction type, said management control unit:

25 sequentially executes, as processes upon prepayment, an issue of an incomplete transaction slip number, an input of a delivery date of goods, a registration of goods, a registration of an amount of

payment including a zero payment, an issue of a customer copy with said slip number, a sum-up of sales amounts, and a registration of a delivery; and

5 sequentially executes, as processes upon payment, a display of incomplete transaction information by the input of said slip number, a registration of an amount of payment, and in case of a zero balance, a termination of the incomplete transaction.

10 10. An apparatus according to claim 3, wherein said transaction defining unit forms type code information having a combination of categories in which a sales sum-up timing is set to a timing upon completion of the transaction, a prepayment is unnecessary, and a  
15 delivery of goods is set to a predelivery with respect to said deferred payment transaction on the principle of completion.

11. An apparatus according to claim 10, wherein in the  
20 case where said deferred payment transaction on the principle of completion is selected as an unsettled transaction type, said management control unit:

25 sequentially executes, as processes upon prepayment, an issue of an incomplete transaction slip number, an input of a delivery date of goods, a registration of goods, a registration of an amount of payment including a zero payment, an issue of a

customer copy with said slip number, and a registration of a delivery; and

sequentially executes, as processes upon payment, a display of incomplete transaction information by the  
5 input of said slip number, a registration of an amount of payment, a sum-up of sales amounts in case of a zero balance, and a termination of the incomplete transaction.

10 12. An apparatus according to claim 1, wherein:

said transaction defining unit has an incomplete transaction management table, a type code table, an incomplete transaction line item information table, and a payment information management table;

15 basic management information such as store number, incomplete transaction slip number, type code, transaction serial number upon occurrence, date and time of occurrence, customer number, requested amount, amount of down payment, balance, scheduled delivery  
20 date, delivery completion flag, sum-up possible/impossible flag, totalization completion flag, and the like is stored in said incomplete transaction management table;

said type code table is designated by a type code  
25 of said incomplete transaction management table, and category combination information such as sum-up timing, prepayment necessary/unnecessary flag, predelivery

possible/impossible flag, method of tender, delivering method, and the like is stored in said type code table;

said incomplete transaction line item information table is designated by an incomplete transaction slip

5 number in said incomplete transaction management table, and goods management information such as goods code, unit price, quantity, discount information, and the like is stored in said incomplete transaction line item information table; and

10 said payment information management table is designated by an incomplete transaction slip number in said incomplete transaction management table, and payment management information such as date and time of payment, paid amount, kind of tender, and the like is 15 stored in said payment information management table.

13. An apparatus according to claim 12, wherein on the basis of each table information of said transaction defining unit, said management control unit displays a 20 list showing the incomplete transactions, a list of the customers who do not come to receive goods even after the scheduled delivery date, a list of the customers who do not come to pay after the term of payment, a list of the payment situations, and the like as a whole 25 list or every type.

14. A transaction managing method for a POS terminal,

comprising the steps of:

defining a plurality of kinds of unsettled transaction types by combining a plurality of predetermined categories; and

5 designating one of said plurality of kinds of unsettled transaction types by an interactive operation with the operator and managing and controlling processes in a lump from the beginning of the transaction to the end.

10 15. A recording medium which stores a transaction management program, wherein said transaction management program comprises the steps of:

defining a plurality of kinds of unsettled transaction types by combining a plurality of predetermined categories; and  
designating one of said plurality of kinds of unsettled transaction types by an interactive operation with the operator and managing and controlling processes in a lump from the beginning of the transaction to the end.

20 25. 16. A transaction system in which a plurality of terminal apparatuses are connected through a network to a server for managing transaction information, wherein each of said terminal apparatuses comprises:  
a transaction defining unit for defining a

- plurality of kinds of unsettled transaction types by  
combining a plurality of predetermined categories; and  
a management control unit for designating one of  
said plurality of kinds of unsettled transaction types  
5 by an interactive operation with the operator and  
managing and controlling processes in a lump from the  
beginning of the transaction to the end.

ABSTRACT OF THE DISCLOSURE

A transaction managing apparatus for a POS terminal has: a transaction defining unit for defining a plurality of kinds of unsettled transaction types by 5 combining a plurality of predetermined categories; and a management control unit for designating one of the plurality of kinds of unsettled transaction types by the interactive operation with the operator and managing and controlling processes in a lump from the 10 start of the transaction to the end. The transaction defining unit defines four kinds of unsettled transaction types by combining at least three items such as sales sum-up timing, presence or absence of necessity of prepayment, and delivering method of goods 15 as categories.

CONFIDENTIAL

FIG. 1

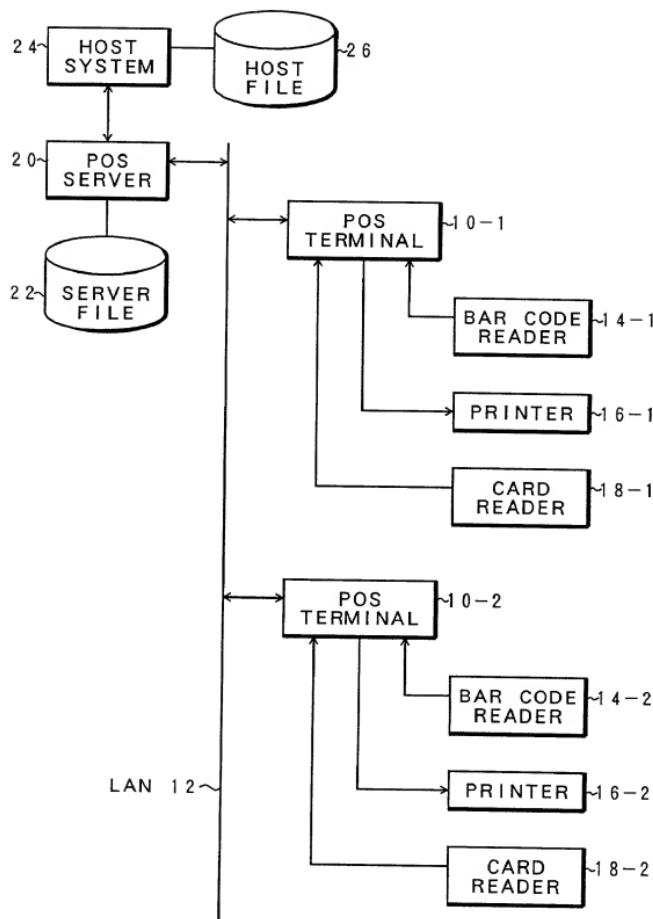


FIG. 2

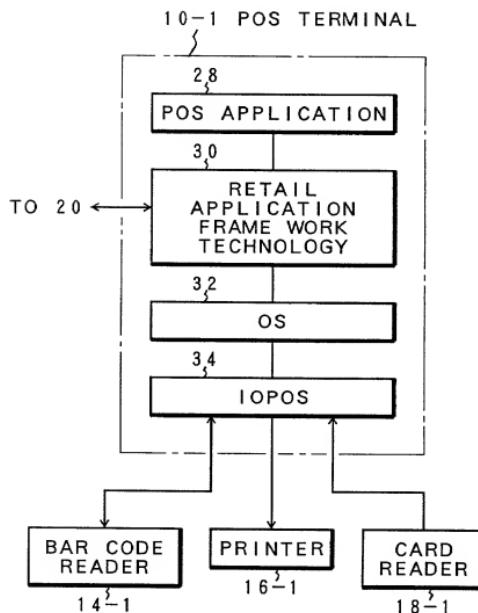
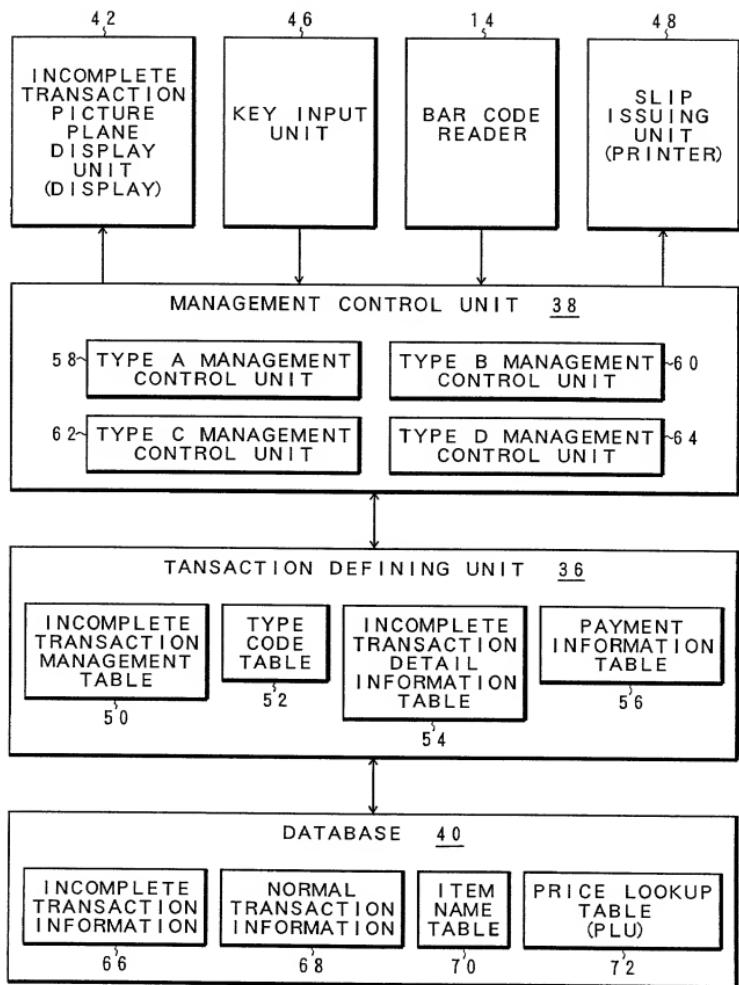


FIG. 3



## F I G. 4A

5.0 INCOMPLETE TRANSACTION MANAGEMENT TABLE	
STORE No.	
INCOMPLETE TRANSACTION SERIAL No.	
TYPE CODE	
TRANSACTION SERIAL No. UPON OCCURRENCE	
DATE AND TIME UPON OCCURRENCE	
CUSTOMER No.	
STATUS CODE	
FINAL UPDATING DATE AND TIME	
EMPLOYEE ID UPON OCCURRENCE	
REQUESTED AMOUNT	
DOWN PAYMENT	
BALANCE	
SCHEDULED DELIVERY DATE	
DELIVERY COMPLETION FLAG	
SUM-UP POSSIBLE/IMPOSSIBLE FLAG	
TOTALIZATION COMPLETION FLAG	
:	

5.4 INCOMPLETE TRANSACTION DETAIL INFORMATION TABLE	
STORE No.	
INCOMPLETE TRANSACTION SERIAL No.	
LINE ITEM No.	
LINE ITEM INFORMATION	
:	

## F I G. 4B



52 TYPE CODE TABLE

TYPE CODE
SUM-UP TIMING
PREPAYMENT NECESSARY/UNNECESSARY FLAG
PREDelivery POSSIBLE/IMPOSSIBLE FLAG
TENDER
DELIVERING METHOD
:

56 PAYMENT INFORMATION  
MANAGEMENT TABLE

STORE No.
INCOMPLETE TRANSACTION SERIAL No.
PAYMENT PROCESSING STORE No.
TRANSACTION SERIAL No. UPON PAYMENT
DATE AND TIME UPON PAYMENT
PAID AMOUNT
TENDER
EMPLOYEE ID UPON PAYMENT
:

## FIG. 5A

74 TYPE CODE TABLE FOR DEFERRED  
 ↴ PICKUP TRANSACTION AND ON  
 THE PRINCIPLE OF OCCURRENCE

TYPE CODE	A
SUM-UP TIMING	UPON OCCURRENCE OF TRANSACTION
PREPAYMENT NECESSARY /UNNECESSARY FLAG	NECESSARY (TOTAL AMOUNT)
DELIVERING METHOD	POSTDELIVERY
SCHEDULED DELIVERY DATE	AFTER 5 BUSINESS DAYS

## FIG. 5B

76 TYPE CODE TABLE FOR DEFERRED  
 ↴ PICKUP TRANSACTION AND ON  
 THE PRINCIPLE OF COMPLETION

TYPE CODE	B
SUM-UP TIMING	AT THE END OF TRANSACTION
PREPAYMENT NECESSARY /UNNECESSARY FLAG	NECESSARY (TOTAL AMOUNT)
DELIVERING METHOD	POSTDELIVERY
SCHEDULED DELIVERY DATE	AFTER 5 BUSINESS DAYS

## FIG. 5C

78 TYPE CODE TABLE FOR DEFERRED  
 PAYMENT TRANSACTION AND ON  
 THE PRINCIPLE OF OCCURRENCE

TYPE CODE	C
SUM-UP TIMING	UPON OCCURRENCE OF TRANSACTION
PREPAYMENT NECESSARY /UNNECESSARY FLAG	UNNECESSARY
DELIVERING METHOD	PREDelivery
SCHEDULED DELIVERY DATE	APPOINTED DAY

## FIG. 5D

80 TYPE CODE TABLE FOR DEFERRED  
 PAYMENT TRANSACTION AND ON  
 THE PRINCIPLE OF COMPLETION

TYPE CODE	D
SUM-UP TIMING	AT THE END OF TRANSACTION
PREPAYMENT NECESSARY /UNNECESSARY FLAG	UNNECESSARY
DELIVERING METHOD	PREDelivery
SCHEDULED DELIVERY DATE	APPOINTED DAY

FIG. 6

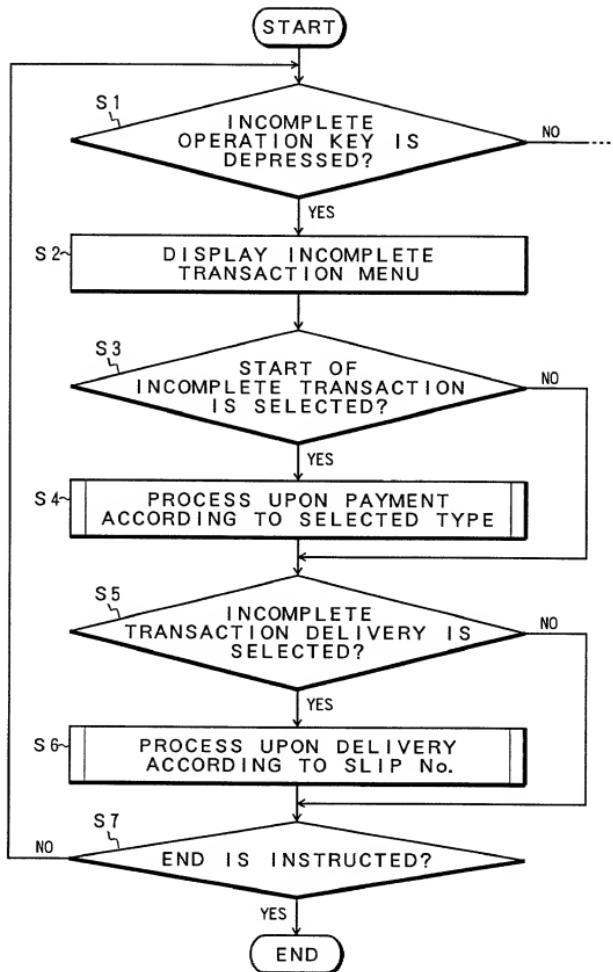


FIG. 7

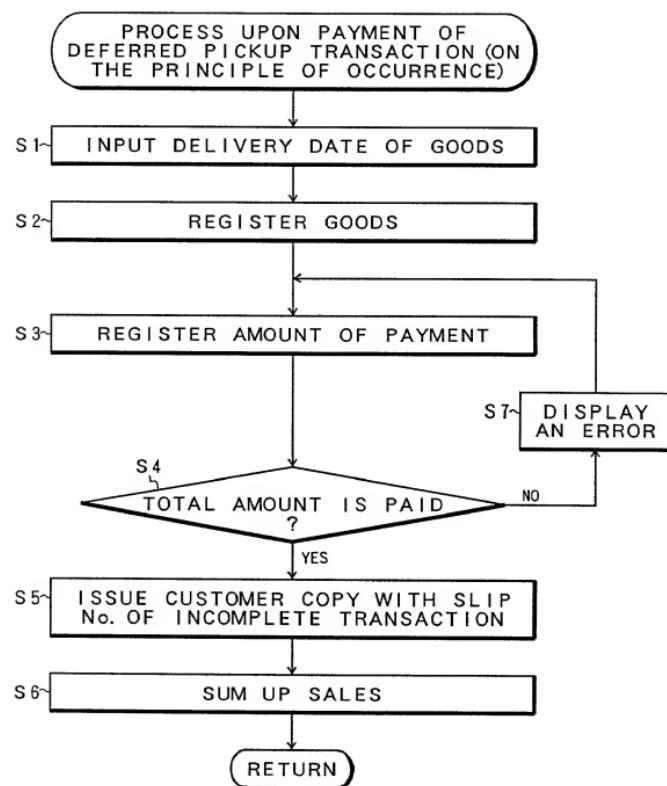


FIG. 8A

82

SALES REGISTRATION	
<b>REGISTER GOODS.</b> <input type="text" value="I"/> SUBTOTAL      ¥0 TAX AMOUNT    ¥0 TOTAL          ¥0	
<input type="button" value="INCOMPLETE"/> 86 ~ <input type="button" value="END"/>	

84

85

FIG. 8B

88

INCOMPLETE TRANSACTION MENU	
90 ~ <input checked="" type="checkbox"/> TRANSACTION UPON PAYMENT 92 ~ <input type="checkbox"/> TRANSACTION UPON DELIVERY	<input type="button" value="OK"/>   <input type="button" value="CANCEL"/>

FIG. 8C

94

SELECTION OF INCOMPLETE TRANSACTION TYPE	
96~ <input checked="" type="checkbox"/>	DEFERRED PICKUP TRANSACTION (ON THE PRINCIPLE OF OCCURRENCE)
98~ <input type="checkbox"/>	DEFERRED PAYMENT TRANSACTION (ON THE PRINCIPLE OF OCCURRENCE)
100~ <input type="checkbox"/>	DEFERRED PICKUP TRANSACTION (ON THE PRINCIPLE OF COMPLETION)
102~ <input type="checkbox"/>	DEFERRED PAYMENT TRANSACTION (ON THE PRINCIPLE OF COMPLETION)
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

FIG. 8D

104

DEFERRED PICKUP TRANSACTION (ON THE PRINCIPLE OF OCCURRENCE)	
INPUT DELIVERY DATE.	
106~	19990928
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

FIG. 9

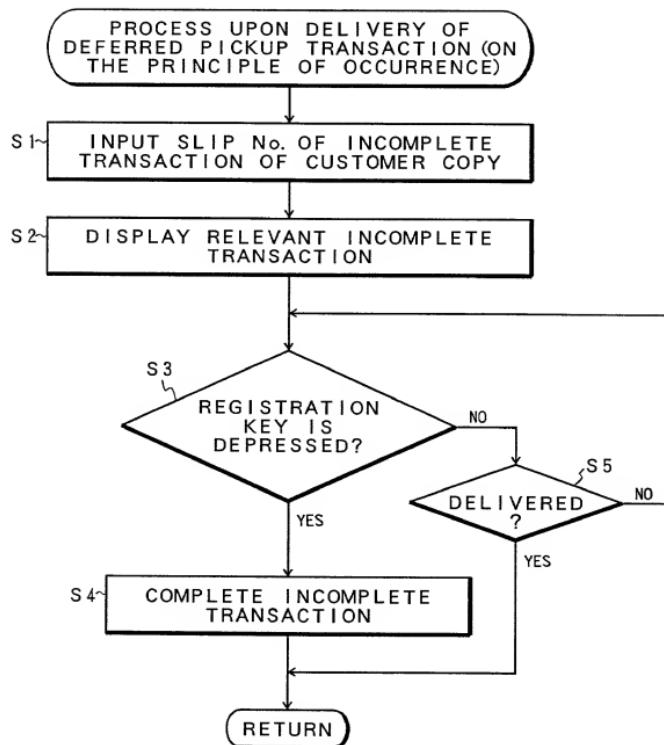


FIG. 10A

82

SALES REGISTRATION									
REGISTER GOODS.									
84									
SUBTOTAL	¥0								
TAX AMOUNT	¥0								
TOTAL	¥0								
85									
<table border="1"> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table>									
86~ INCOMPLETE									
END									

FIG. 10B

88

INCOMPLETE TRANSACTION MENU			
90~□	TRANSACTION UPON PAYMENT		
92~■	TRANSACTION UPON DELIVERY		
<table border="1"> <tr> <td>OK</td> <td>CANCEL</td> </tr> </table>		OK	CANCEL
OK	CANCEL		

FIG. 10C

108

DELIVERY	
INPUT SLIP No.	
110~	
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

FIG. 10D

112

INCOMPLETE TRANSACTION CONFIRMATION (DEFERRED PICKUP TRANSACTION • ON THE PRINCIPLE OF OCCURRENCE)	
114      SLIP No. 0000001 SALES DATE 99/09/23 SALES AMOUNT ¥18,000 BALANCE ¥0 DELIVERY DATE 99/09/28 COMPLETION OF PAYMENT <input checked="" type="checkbox"/> DELIVERED <input type="checkbox"/>	
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

116

118

## FIG. 10 E

114 →

INCOMPLETE TRANSACTION CONFIRMATION (DEFERRED PICKUP TRANSACTION • ON THE PRINCIPLE OF OCCURRENCE)	
SLIP No.	0 0 0 0 0 0 1
SALES DATE	9 9 / 0 9 / 2 3
SALES AMOUNT	¥ 18, 0 0 0
BALANCE	¥ 0
DELIVERY DATE	9 9 / 0 9 / 2 8
COMPLETION OF PAYMENT	<input checked="" type="checkbox"/> 116
DELIVERED	118

112 ↗

OK CANCEL

000000 = 11250560

FIG. 11

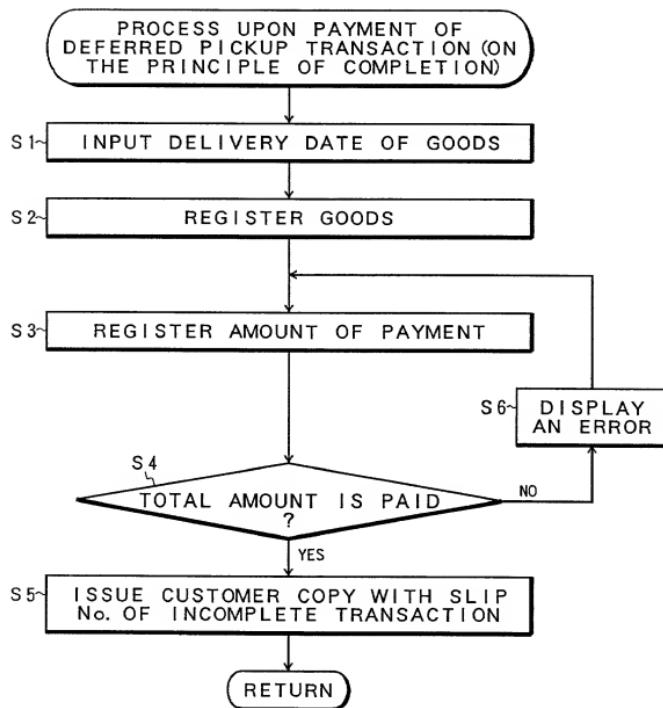


FIG. 12

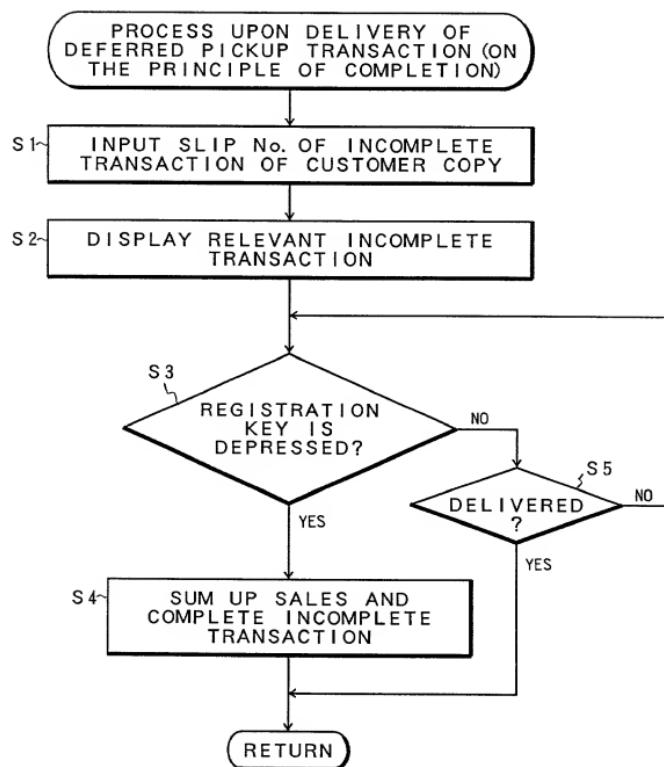
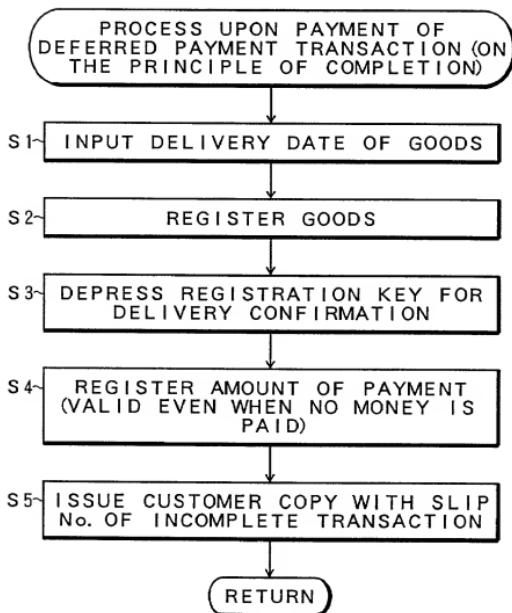


FIG. 13



19/31

FIG. 14A

SALES REGISTRATION

REGISTER GOODS.

84 |

SUBTOTAL      ¥0

TAX AMOUNT    ¥0

TOTAL          ¥0

85

86~ INCOMPLETE      END

This diagram shows a rectangular window titled "SALES REGISTRATION". Inside, there's a section labeled "REGISTER GOODS." containing a single character input field. Below it are three lines of text: "SUBTOTAL", "TAX AMOUNT", and "TOTAL", each followed by a value of "¥0". To the right of the "REGISTER GOODS." section is a 2x3 grid of empty boxes. At the bottom of the window are two buttons: "INCOMPLETE" and "END". A reference number "84" is to the left of the input field, and "85" is to the right of the grid. A bracketed reference "82" is at the top right corner of the window.

FIG. 14B

INCOMPLETE TRANSACTION MENU

90～□ TRANSACTION UPON PAYMENT

92～■ TRANSACTION UPON DELIVERY

88

OK      CANCEL

This diagram shows a rectangular window titled "INCOMPLETE TRANSACTION MENU". It contains two menu items: "TRANSACTION UPON PAYMENT" and "TRANSACTION UPON DELIVERY", each preceded by a selection symbol (□ or ■). At the bottom are two buttons: "OK" and "CANCEL". A reference number "88" is at the top right corner of the window.

FIG. 14C

94

**SELECTION OF INCOMPLETE TRANSACTION TYPE**

9 6~ <input type="checkbox"/>	DEFERRED PICKUP TRANSACTION (ON THE PRINCIPLE OF OCCURRENCE)
9 8~ <input type="checkbox"/>	DEFERRED PAYMENT TRANSACTION (ON THE PRINCIPLE OF OCCURRENCE)
1 0 0~ <input type="checkbox"/>	DEFERRED PICKUP TRANSACTION (ON THE PRINCIPLE OF COMPLETION)
1 0 2~ <input checked="" type="checkbox"/>	DEFERRED PAYMENT TRANSACTION (ON THE PRINCIPLE OF COMPLETION)

**OK      CANCEL**

FIG. 14D

115

**DEFERRED PAYMENT TRANSACTION  
(ON THE PRINCIPLE OF COMPLETION)**

**INPUT DELIVERY DATE.**

115-1~ 19990923

**OK      CANCEL**

## FIG. 14 E

116-1

INCOMPLETE TRANSACTION CONFIRMATION (DEFERRED PAYMENT TRANSACTION • ON THE PRINCIPLE OF COMPLETION)			
SLIP No.	0 0 0 0 0 0 2		
SALES DATE	9 9 / 0 9 / 2 3		
SALES AMOUNT	¥ 35, 0 0 0		
BALANCE	¥ 35, 0 0 0		
DELIVERY DATE	9 9 / 0 9 / 2 3		
COMPLETION OF PAYMENT	<input checked="" type="checkbox"/> 1 2 4		
DELIVERED	1 2 6		
  <table border="1"><tr><td>OK</td><td>CANCEL</td></tr></table>		OK	CANCEL
OK	CANCEL		

FIG. 15

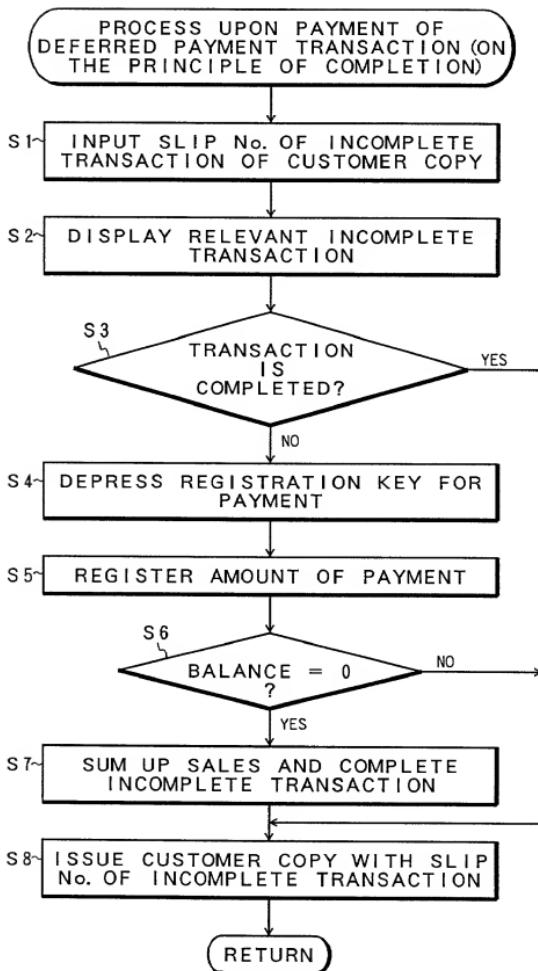


FIG. 16A

82

SALES REGISTRATION	
REGISTER GOODS.	
84	
SUBTOTAL	¥0
TAX AMOUNT	¥0
TOTAL	¥0
85	
86~ INCOMPLETE END	

FIG. 16B

88

INCOMPLETE TRANSACTION MENU	
90~□	TRANSACTION UPON PAYMENT
92~■	TRANSACTION UPON DELIVERY
OK CANCEL	

24/31

FIG. 16C

115

DELIVERY	
INPUT SLIP No.	
120~	<input type="text"/>
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

FIG. 16D

116-2

INCOMPLETE TRANSACTION CONFIRMATION (DEFERRED PAYMENT TRANSACTION ON THE PRINCIPLE OF COMPLETION)	
SLIP No.	0 0 0 0 0 0 2
SALES DATE	9 9 / 0 9 / 2 3
SALES AMOUNT	¥ 35, 0 0 0
BALANCE	¥ 25, 0 0 0
DELIVERY DATE	9 9 / 0 9 / 2 3
COMPLETION OF PAYMENT	<input type="checkbox"/>
DELIVERED	<input checked="" type="checkbox"/> 124
126	
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

## FIG. 16 E

116-3

INCOMPLETE TRANSACTION CONFIRMATION (DEFERRED PAYMENT TRANSACTION • ON THE PRINCIPLE OF COMPLETION)	
SLIP No.	0 0 0 0 0 0 2
SALES DATE	9 9 / 0 9 / 2 3
SALES AMOUNT	¥ 35, 0 0 0
BALANCE	¥ 0
DELIVERY DATE	9 9 / 0 9 / 2 8
COMPLETION OF PAYMENT	<input checked="" type="checkbox"/> 1 2 4
DELIVERED	1 2 6
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

FIG. 17

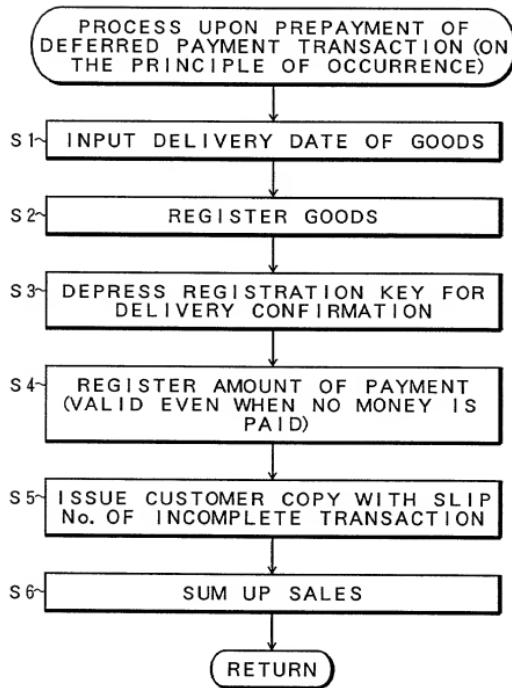


FIG. 18

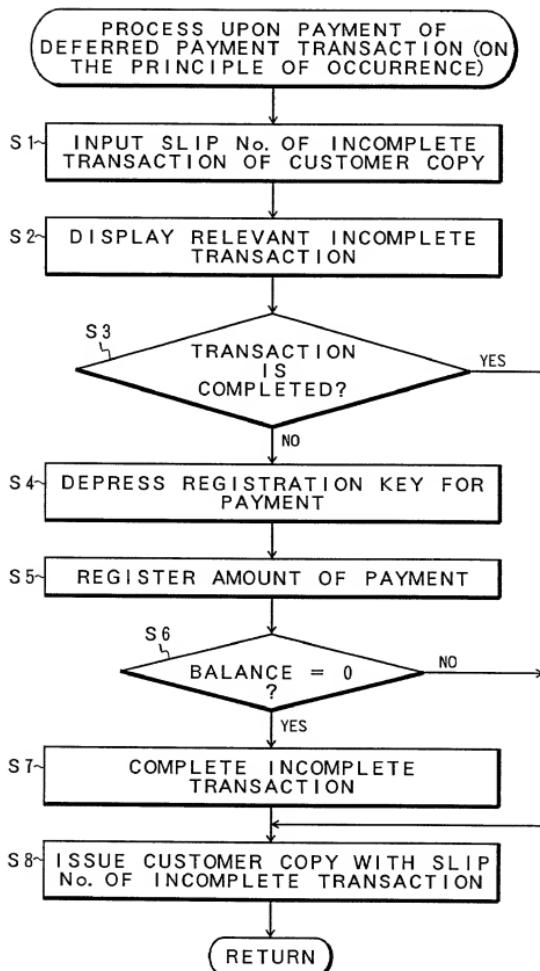


FIG. 19A

128

INCOMPLETE TRANSACTION LIST AS OF Oct. 1, 1999			
SLIP No.	DATE AND TIME OF OCCURRENCE	AMOUNT	TYPE
0000001	99. 09. 23	15, 000	DEFERRED PICKUP A
0000022	99. 09. 23	24, 800	DEFERRED PICKUP A
0000034	99. 09. 24	49, 800	DEFERRED PAYMENT D
0000045	99. 09. 24	17, 500	DEFERRED PICKUP A
.	.	.	.
.	.	.	.
.	.	.	.
0000241	99. 09. 27	115, 000	DEFERRED PAYMENT D

130

## FIG. 19B

132

UNTAKEN-OVER CUSTOMER LIST AS OF Oct. 1, 1999			
SLIP No.	DATE AND TIME OF OCCURRENCE	SCHEDULED DELIVERY DATE	TYPE
0000001	99. 09. 23	99. 09. 28	DEFERRED PICKUP A
0000055	99. 09. 23	99. 09. 28	DEFERRED PAYMENT D
0000062	99. 09. 24	99. 09. 30	DEFERRED PICKUP A
0000077	99. 09. 24	99. 09. 30	DEFERRED PICKUP A
.	.	.	.
.	.	.	.
.	.	.	.
0000111	99. 09. 25	99. 09. 30	DEFERRED PICKUP A

OK	CANCEL
----	--------

FIG. 20A

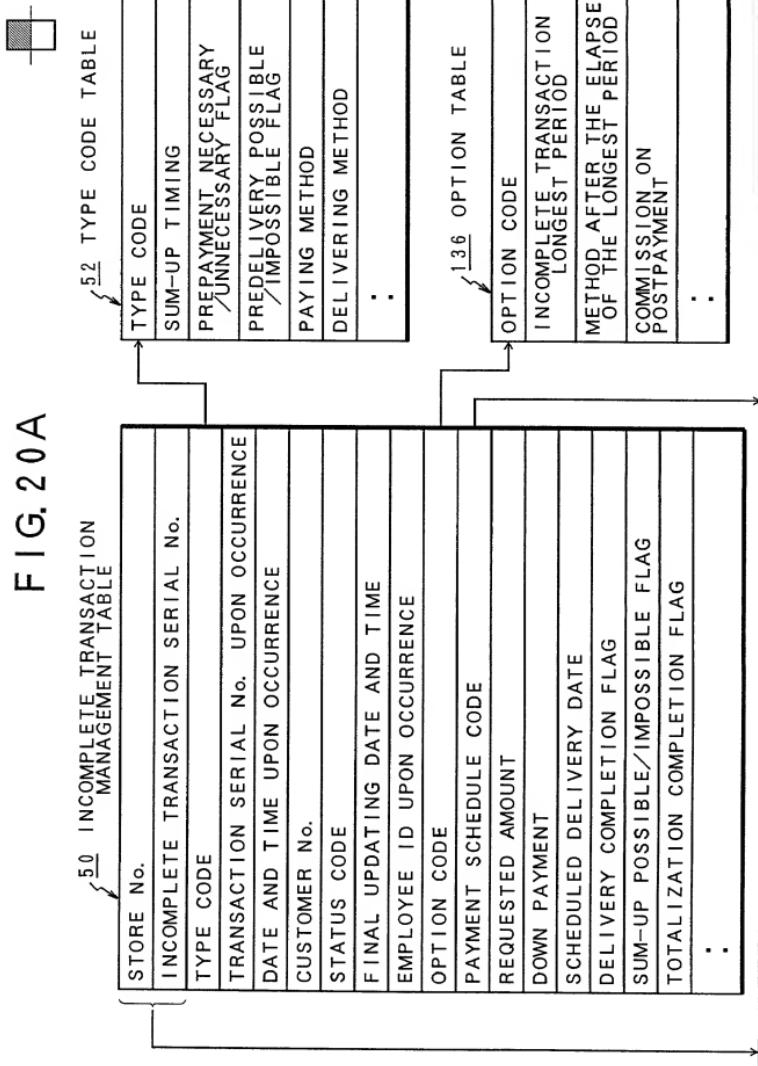
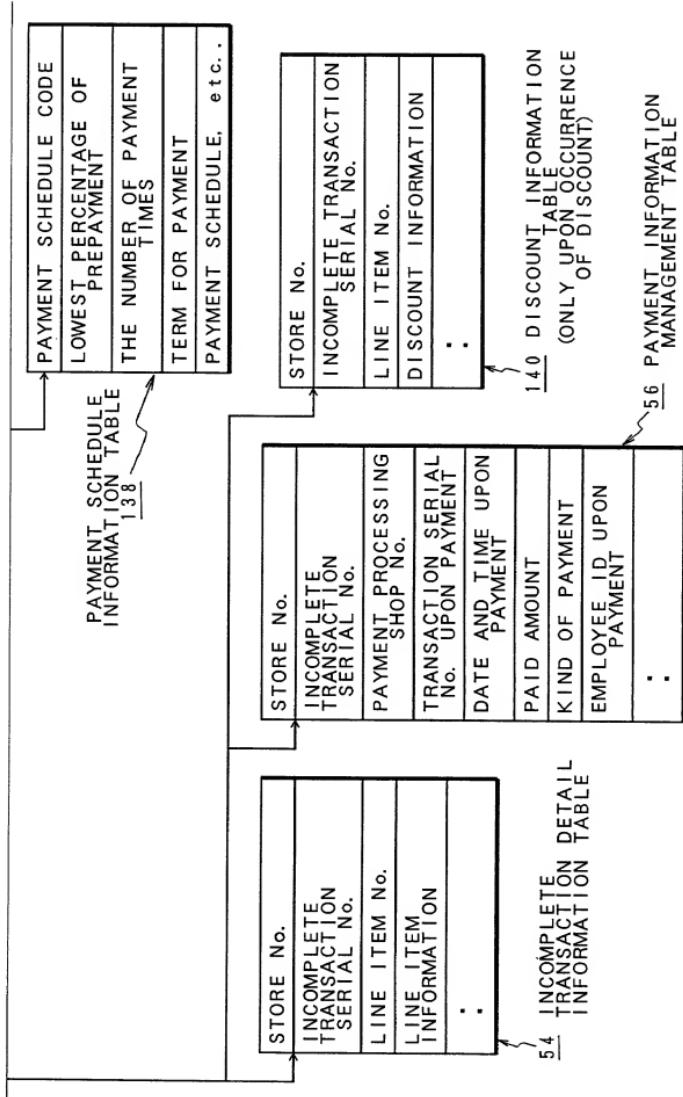


FIG. 20B



## Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

### Japanese Language Declaration

#### 日本語宣言書

下の元名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に關して特許請求に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名前が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Transaction managing apparatus and  
and method and recording medium  
storing transaction managing  
program therein

上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

- 一月一日に提出され、米国出願番号または特許協定条約国際出願番号を\_\_\_\_\_とし、  
(該当する場合) \_\_\_\_\_に訂正されました。

was filed on \_\_\_\_\_  
as United States Application Number or  
PCT International Application Number  
\_\_\_\_\_ and was amended on  
\_\_\_\_\_ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、運営規則法典第37編第1条56項に定められるところ、特許実格の各部について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

**Japanese Language Declaration**  
(日本語宣言書)

私は、米国法典第35編1章9条(a)-(d)項又は365条(b)項に基いて下記の、米国外の國の少なくとも一ヶ國を指定している特許協力条約365条(a)項に基いて國際出願、又は外國での普通出願もしくは簡略化出願についての外国優先権をここに主張するとともに、優先権を主張している、出願の前に上記された特許または發明者権の外国出願を以下に、箇内をマークすることを、示しています。

**Prior Foreign Application(s)**

外国での先行出願

11/298,009

Japan

(Number)

(番号)

(Country)

(國名)

(Number)

(番号)

(Country)

(國名)

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed

既先権主張なし

20/10/99

(Day/Month/Year Filed)

(出願年月日)

(Day/Month/Year Filed)

(出願年月日)

ニ

ニ

私は、第35編米国法典1章9条(e)項に基いて下記の米国特許出願規定に記載された権利をここに主張いたします。

(Application No.) (出願番号)	(Filing Date) (出願日)
-----------------------------	------------------------

(Application No.) (出願番号)	(Filing Date) (出願日)
-----------------------------	------------------------

私は、下記の米国法典第35編1章20条に基いて下記の米国特許出願に記載された権利、又は米国を指定している特許協力条約365条(c)に基いて権利をここに主張します。また、不出願の各請求範囲の内容が米国法典第35編1章20条第1項又は特許協力条約で規定された方法で先行する米国特許出願に開示されていない限り、その先行米国出願提出日から算めて出願する日本国内または特許協力条約国提出日までの期間中に入手された、道徳規則法典第37編1章56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Application No.) (出願番号)	(Filing Date) (出願日)
-----------------------------	------------------------

(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係査中、放棄済)
---

(Application No.) (出願番号)	(Filing Date) (出願日)
-----------------------------	------------------------

(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係査中、放棄済)
---

私は、私自身の知識に基いて本宣言書で私が行なう表明が真実であり、かつ私の入手した情報と私の信じるところに基いて表明が全く真実であると信じていること、さらには故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基いて、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行なえば、出願した、又は既に許可された特許の有効性が失われるることを認識し、よってここに二記のごとく宣言を致します。

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Japanese Language Declaration (日本語宣言書)

委任状：私は下記の発明者として、本出願に關する一切の  
手続を米特許商標局に対して進行する半島二三または代理人  
として、下記の者を指名いたします。（弁護士、または代理  
人の氏名及び登録番号を明記のこと）

**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number)

書類送付元

And I hereby appoint as principal attorneys: David T. Nikaido, Reg. No. 22,663; Charles M. Marmelstein, Reg. No. 25,895; George E. Oram, Jr., Reg. No. 27,931; Robert B. Murray, Reg. No. 22,980; E. Marcie Ennas, Reg. No. 32,131; Douglas H. Goldblush, Reg. No. 33,125; Monica Chin Kitis, Reg. No. 36,105; Richard J. Berman, Reg. No. 39,107; King L. Wong, Reg. No. 37,500; Karen K. Constantino, Reg. No. 35,107; James A. Poulos, III, Reg. No. 31,714; Patrick D. Muir, Reg. No. 37,403; Sharon N. Klesner, Reg. No. 36,335; and Murat Ozgu, Reg. No. 44,275; Bradley D. Goldizen, Reg. No. 43,637; and N. Alexander Nolte, Reg. No. 45,689.

直虎電話連絡先：（名前及び電話番号）

Please direct all communications to the following address:  
ARENT FOX KINTNER PLOTKIN & KAHN, PLLC  
1050 Connecticut Avenue, N.W., Suite 600  
Washington, D.C. 20036-5339  
Tel: (202) 857-6000; Fax: (202) 857-6395

第一または第一発明者名		Full name of sole or first inventor	
		Aki Nagano	
発明者の署名	日付	Inventor's signature	Date
		Aki Nagano	15/6/00
住所	Residence		
	Kawasaki, Japan		
国籍	Citizenship		
	Japan		
私書箱	Post Office Address C/o FUJITSU LIMITED 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8588, Japan		
第二共同発明者名	Full name of second joint inventor, if any		
第二共同発明者の署名	日付	Second inventor's signature	Date
住所	Residence		
国籍	Citizenship		
私書箱	Post Office Address		

（第三以降の共同発明者についても同様に記載し、署名をす  
ること）

(Supply similar information and signature for third and subsequent joint inventors.)